

Advanced Placement Calculus

Advanced Placement Calculus develops the student's understanding of the concepts of calculus (functions, graphs, limits, derivatives and integrals) and provides experience with its methods and applications. The course encourages the geometric, numerical, analytical, and verbal expression of concepts, results, and problems. Appropriate technology, from manipulatives to calculators and application software, should be used regularly for instruction and assessment.

Prerequisites

- Use circle, trigonometric, and inverse trigonometric functions to solve problems.
- Use the trigonometric ratios and the laws of sines and cosines to solve problems.
- Describe graphically, algebraically and verbally phenomena as functions; identifying independent and dependent quantities, domain, and range.
- Translate among graphic, algebraic, tabular, and verbal representations of relations.
- Use functions (linear, polynomial, exponential, logarithmic, rational, power, piecewise) to model and solve problems.
- Use the composition and inverse of functions to model and solve problems.
- Transform relations in two and three dimensions; describe algebraically and/or geometrically the results.
- Use the conic relations to model and solve problems.
- Write equivalent forms of algebraic expressions.
- Find special points (zeros, intercepts, asymptotes, local maximum, local minimum, etc.) of relations and describe in the context of the problem.

Strands: Number and Operations, Geometry and Measurement, Algebra

COMPETENCY GOAL 1: The learner will demonstrate an understanding of the behavior of functions.

Objectives

- 1.01 Demonstrate an understanding of limits both local and global.
 - a) Calculate limits, including one-sided, using algebra.
 - b) Estimate limits from graphs or tables of data.